
Chapter - I

Introduction:
In recent years a great deal of attention has been paid to the relationship of psychological factors especially personality variables with sports performance. Most of these work has been concerned with delineating personality traits of athletes differentiating among individual by sports, level of successes etc. in fact a major dimension of the study of psychological aspect of sports is concerned with inquiries into the aggression, personality characteristics locus of control among junior combat sports persons and senior combat sports persons. There are numerous theories about the personality of athletics. But only limited amount of research has been undertaken to support these theories. Here those studies will be presented which are related with the (i) combat sports person’s differences in aggression, personality characteristics, locus of control of sportsmen. (ii) ) area of residence differences in aggression, personality characteristics, locus of control of sportsmen.

Personality and sports Performance
Many Investigators have directed their attention towards an understanding of the relationship between personality and level of performance e. g. Johnson, Hutton and Johnson (1994) found that the outstanding athletes were found to possess several distinguishing characteristics liked extreme aggressiveness a freedom from great emotional inhabitation, high and generalized and anxiety, high level of intellectual
aspiration and feelings of exceptional self assurance laplace (1954) also investigated that the outstanding athletes were better adjusted than the unsuccessful group. Singer (1969) compared the basketball players and tennis players on EPPS norms and also the highest and lowest ranked athletes in both sports. The baseball team’s sports significantly higher than the other two groups on the abasement factor, significantly lower than the other two groups, on the interception variable, lower than the tennis group on the achievement variable, lower than the norm group on autonomy and lower than the tennis group on dominance. Both the baseball and tennis groups scored significantly higher than the norm groups on the aggression factor. No differences were noted between high and low rated baseball players.

Parsons (1964) administered the 16 PF to champion swimmers and found that they differed from the population on 15 of the 16 factors. However, those swimmers in the champion group who were selected to participate on 1962 Canadian team did not differ from those swimmers who were not selected.

Kane (1964) who reviewed the literature pertaining to personality and physical ability came to the conclusion that a positive relationship exist between athletic ability and stability as opposed to anxiety, athletic ability and extroversion as opposed to introversion. The result of the investigation conducted since Kane’s (1964) reviewed have been equivocal as provided by considerable evidence showing that success in sports is dependent upon certain physical capacities. Kane (1964) also examined the relationships between various physical abilities, personality factors, physique, and sociometric status he found, (i) that a high level of physical ability favors extravert development, (ii) that among those of high physical ability, only those achieve high standards in competitive conditions who rate highly in extravert, and (iii) that size supports stability.
In a study conducted by Acampora (1971), on women field hockey players at the high school, college and club level. It was found that the higher the level of completion. The more favourable the score on traits such as self-confidence, determination, emotional control, conscientiousness, trust and leadership.

The findings of Singh (1979) supported that high skilled players, irrespective of the game they played were more extrovert and less neurotic than the low skilled players. His results further confirmed the findings of some previous investigations conducted by Sperling (1942), Johnson, Hutton and Johnson (1954), Yanada and Hirata (1970), Foster (1972), Sandhu (1976), Shokeen (1977), Gruber and parkins (1978).

Recently, interest in the relationship between “sports and personality “ has once more received a boost (Kirkcalby et al. 1983; Bachleitner, 1984) while there are some researchers who have established an obvious relationship between athletic performance and personality traits (Eysenck, 1982; Kirkcaldy, 1982), there are others who deny such a correlation mainly because the results provide contradictory findings (Sack, 1982; Mummendry, 1983)

**Role of Competitive Anxiety in Sports**

A considerable amount of research has been done to ascertain the effect of anxiety and psychological stress on the learning and performance of motor skills. Most of the researches pertaining to relationship between anxiety sports is concerned with the questions as to how A-trait and A-State. Affect sports performance and how sports affects A-trait and A-state. There are a very few studies that have compared various groups of sports participants to determine the differences in general A-trait. If we assume that sports participants are higher in A-trait than non-participants, or participants in one
The investigator (1986) found that the players of individual events and team games differed significantly on the extraversion and neuroticism traits of personality. In the case of both males and females, the athletic group was more extrovert and more neurotic than the hockey group. Sandhu, Mann and Brar (1987) found that the team players and wrestlers were equally extraverted.

**Personality Traits of Sportsmen of Various Games**

The area of personality and athletic has resulted in a great deal of contradictory claims as to whether or not athletes exhibit a characteristics personality profile (Lakie, 1962; Schenbel, 1965; Werner and Gottheil, 1966; Kroll and Carlson, 1967; Singer, 1968; Rushall, 1968; Newmann, 1968; Berger and Litterfield, 1969; Hammer, 1969; Neele, Sanstroem and Metz, 1969). Researchers in sport psychology are trying to identify the hidden factors behind success in a particular sport. Several researchers are studying the relationship of extraversion, neuroticism and other personality traits with specific sports events.

Henry (1941) found that track athletes and pilots to be quite similar and they were significantly less hypochondrical and introverted than weightlifters and more neurasthenic than the physical education majors. Booth (1958), Slusher (1964) have reported certain personality traits as distinguishing athletes of one kind from those of other kinds. Harlow (1951) has drawn attention to the relationship between masculine inadequacy and compensatory development of physique. Johnson, Hutton and Johnson (1954) in their study concluded that national champions were aggressive, highly anxious, possessed high level intellectual aspiration and exceptional feeling of self-assurance. Husman (1955) showed in his study on boxers, wrestlers and cross-country distinguishing characteristics as far as aggressive tendencies are concerned. His findings were that the cross-country runners tended to be more extra punitive that
the boxer and boxers possessed less overall intensity of aggression and had more super ego. Lakie (1962) has investigated the personality characteristics of certain groups of inter-collegiate athletes, singer (1967) enquired into the personality differences between and within basketball and tennis players. Thune (1959) studied the personality of weightlifters. Booth (1958) and Cattell (1960) have indicated that certain traits distinguish athletes from other groups. Slusher (1964) using MMPI found that personality differences existed even among athletes who participated in different sports.

While some studies have looked specifically at football teams (Rushall, 1970; Straub and Davis, 1971; Mandel, 1974), others have conducted studies on other sportsmen. In general, successful football players have been described as being aggressive, ambitious, dominant etc. (Ogilvie and Tutko, 1966, 1971; Ogilive, 1968). Kroll and Peterson (1965) using 16 PF on football players reported that the winning team had significantly superior score on B+, H-, O- and Q3 + than the losing football team.

Powerful events have a way of bringing out similar reactions in people. Someone might point to this tragedy to illustrate how much alike each of us really is, how all people are basically the same. Yet if we look a little more closely, even in this situation we can see that not everyone reacted in the same way. In the days following the attack, many Americans were glued to their television sets, eagerly following each new development. Others turned their sets off, unable to watch the unsettling images any longer. Some citizens were overcome with anger and vowed revenge. Others focused on the victims and asked how they could help. Some people gathered at public events where they shared feelings and consoled their neighbors. Others sought solitude and quiet reflection. Many people turned to religion to find meaning and
comfort, but some struggled to find the hand of God in so much suffering. Eight years later, some people talked about how much had changed. Others marveled at the nation’s ability to return to normalcy. Some people found comfort in the sense of community. For others, the day triggered painful memories and renewed fears.

**Allport's Definition of Personality**

"Personality is the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to the environment."

"Personality" is a dynamic and organized set of characteristics possessed by a person that uniquely influences his or her cognitions, emotions, motivations, and behaviors in various situations. The word "personality" originates from the Latin *persona*, which means mask. In the theatre of the ancient Latin-speaking world, the mask was not used as a plot device to disguise the identity of a character, but instead was a convention employed to represent or typify that character.

Personality also refers to the pattern of thoughts, feelings, social adjustments, and behaviors consistently exhibited over time that strongly influences one's expectations, self-perceptions, values, and attitudes. It also predicts human reactions to other people, problems, and stress. There is still no universal consensus on the definition of "personality" in psychology. Gordon Allport (1937) described two major ways to study personality: the nomothetic and the idiographic. Nomothetic psychology seeks general laws that can be applied to many different people, such as the principle of self-actualization or the trait of extraversion. Idiographic psychology is an attempt to understand the unique aspects of a particular individual.

The study of personality has a broad and varied history in psychology with an abundance of theoretical traditions. The major theories include dispositional (trait) perspective, psychodynamic, humanistic, biological, behaviorist, evolutionary and
social learning perspective. However, many researchers and psychologists do not explicitly identify themselves with a certain perspective and instead take an eclectic approach. Research in this area is empirically driven, such as dimensional models, based on multivariate statistics, such as factor analysis, or emphasizes theory development, such as that of the psychodynamic theory. There is also a substantial emphasis on the applied field of personality testing. In psychological education and training, the study of the nature of personality and its psychological development is usually reviewed as a prerequisite to courses in abnormal psychology or clinical psychology.

Almost everyday we describe and assess the personalities of the people around us. Whether we realize it or not, these daily musings on how and why people behave as they do are similar to what personality psychologists do.

While our informal assessments of personality tend to focus more on individuals, personality psychologists instead use conceptions of personality that can apply to everyone. Personality research has led to the development of a number of theories that help explain how and why certain personality traits develop.

**Components of Personality**

So what exactly makes up a personality? As described in the definitions above, you would expect that traits and patterns of thought and emotion make up an important part. Some of the other fundamental characteristics of personality include:

- **Consistency** - There is generally a recognizable order and regularity to behaviors. Essentially, people act in the same ways or similar ways in a variety of situations.

- **Psychological and physiological** - Personality is a psychological construct, but research suggests that it is also influenced by biological processes and needs.
- **It impacts behaviors and actions** - Personality does not just influence how we move and respond in our environment; it also *causes* us to act in certain ways.

- **Multiple expressions** - Personality is displayed in more than just behavior. It can also be seen in our thoughts, feelings, close relationships and other social interactions.

**Personality theories**

The study of personality is based on the essential insight that all people are similar in some ways, yet different in others. There have been many different definitions of personality proposed. However, many contemporary psychologists agree on the following definition:

> Personality is that pattern of characteristic thoughts, feelings, and behaviors that distinguishes one person from another and that persists over time and situations.

**Trait theories**

According to the Diagnostic and Statistical Manual of the American Psychiatric Association, personality traits are "enduring patterns of perceiving, relating to, and thinking about the environment and oneself that are exhibited in a wide range of social and personal contexts." Theorists generally assume that a) traits are relatively stable over time, b) traits differ among individuals, and c) traits influence behavior. They consistently are used in order to help define people as a whole. Traits are relatively constant; they do not usually change. Traits are also bipolar; they vary along a continuum between one extreme and the other (e.g. friendly vs. unfriendly).

The most common models of traits incorporate three to five broad dimensions or factors. All trait theories incorporate at least two dimensions, extraversion and neuroticism, which historically featured in Hippocrates' humoral theory.
Gordon Allport delineated different kinds of traits, which he also called dispositions. Central traits are basic to an individual's personality, while secondary traits are more peripheral. Common traits are those recognized within a culture and thus may vary from culture to culture. Cardinal traits are those by which an individual may be strongly recognized. In his book, Personality: A Psychological Interpretation, Gordon Allport (1937) both established personality psychology as a legitimate intellectual discipline and introduced the first of the modern trait theories.

Raymond Cattell's research propagated a two-tiered personality structure with sixteen "primary factors" (16 Personality Factors) and five "secondary factors." In Cattell's lengthy career, he had written 50 books, 500 journals, and 30 different types of standardized tests. For Cattell, personality itself was defined in terms of behavioral prediction. He defined personality as that which permits a prediction of what a person will do in a given situation.

John Gittinger's theory and its applications (the Personality Assessment System (PAS)) uses the Wechsler intelligence tests, which are well standardized and objective instruments rather than self-report tests. PAS factors out personality traits (primitivity) and two additional levels, Basid and Surface, which are adaptations by environmentally induced presses and learning. Gittinger's multivariate personality descriptions exceed 500 data-based outcome descriptions.

Hans Eysenck believed just three traits—extraversion, neuroticism and psychoticism—were sufficient to describe human personality. Differences between Cattell and Eysenck emerged due to preferences for different forms of factor analysis, with Cattell using oblique, Eysenck orthogonal rotation to analyze the factors that emerged when personality questionnaires were subjected to statistical analysis. Today, the Big Five factors have the weight of a considerable amount of empirical
research behind them, building on the work of Cattell and others. Eysenck, along with another contemporary in trait psychology named J. P. Guilford (1959), believed that the resultant trait factors obtained from factor analysis should be statistically independent of one another—that is, the factors should be arranged (rotated) so that they are uncorrelated or orthogonal (at right angles) to one another.

- Lewis Goldberg proposed a five-dimension personality model, nicknamed the "Big Five":

1. *Openness to Experience*: the tendency to be imaginative, independent, and interested in variety vs. practical, conforming, and interested in routine.
2. *Conscientiousness*: the tendency to be organized, careful, and disciplined vs. disorganized, careless, and impulsive.
3. *Extraversion*: the tendency to be sociable, fun-loving, and affectionate vs. retiring, somber, and reserved.
4. *Agreeableness*: the tendency to be softhearted, trusting, and helpful vs. ruthless, suspicious, and uncooperative.
5. *Neuroticism*: the tendency to be calm, secure, and self-satisfied vs. anxious, insecure, and self-pitying

   The Big Five contain important dimensions of personality. However, some personality researchers argue that this list of major traits is not exhaustive. Some support has been found for two additional factors: excellent/ordinary and evil/decent. However, no definitive conclusions have been established.

- Michael Ashton and Kibeom Lee, in 2008, proposed a six-dimensional HEXACO model of personality structure. The HEXACO personality traits/factors are: Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). The three dimensions -
Extraversion, Conscientiousness and Openness to Experience are considered to be basically the same as their counterpart dimensions in the Big Five Model. However, in the HEXACO model, Honesty-Humility, Emotionality and Agreeableness differ from the Neuroticism and Agreeableness factors of the Big Five Model. Ashton and Lee especially emphasize the Honesty-Humility (H) factor as differentiating the HEXACO model from other personality frameworks. Specifically, the H factor is described as sincere, honest, faithful/loyal, modest/unassuming, fair-minded, VERSUS sly, deceitful, greedy, pretentious, hypocritical, boastful and pompous. The H factor has been linked to criminal, materialistic, power-seeking and unethical tendencies.

Trait models have been criticized as being purely descriptive and offering little explanation of the underlying causes of personality. Eysenck's theory, however, proposes biological mechanisms as driving traits, and modern behavior genetics researchers have shown a clear genetic substrate to them. Another potential weakness of trait theories is that they may lead some people to accept oversimplified classifications—or worse, offer advice—based on a superficial analysis of personality. Finally, trait models often underestimate the effect of specific situations on people's behavior.

Traits are considered to be statistical generalizations that do not always correspond to an individual's behavior. The importance that genetic influences have on personality characteristics can change across a five-year period. Age differences create more variables even within a family, so the best comparisons are found using twins. Twins typically share a family environment called a shared environment because they may share other aspects like teachers, school, and friends. A non-shared environment means completely different environment for both subjects. "Biologically related children who are separated after birth and raised in different families live in
non-shared environments." Identical twins separated at birth and raised in different families constitute the best cases for heredity and personality because similarities between the two are due only to genetic influences. Vulnerability was a factor in this study that was taken into consideration regarding the issue of genetic influences on vulnerability. The study concluded that the monozygotic co-twins would be more similar than dizygotic co-twins in change over time. The data concluded that there were no significant differences for either variances between the monozygotic and dizygotic co-twins.

Another current open question is whether genetic influences are important for the likeliness of co-twins to change in the same way over a period of time. A link was found between the personality trait of neuroticism and a polymorphism called 5-HTTLPR in the serotonin transporter gene, but this association was not replicated in larger studies. Other candidate gene studies have provided weak evidence that some personality traits are related to AVPRIA ("ruthlessness gene") and MAOA ("Warrior gene"). Genotypes, or the genetic make up of an organism, influence but don't fully decide the physical traits of a person. Those are also influenced by the environment and behaviors they are surrounded by. For example, a person's height is affected by genetics, but if they are malnourished growth will be stunted no matter what their genetic coding says. Environment is also not completely responsible for an outcome in personality. An example from Psychobiology of Personality by Marvin Zuckerman is alcoholism: Studies suggest that alcoholism is an inherited disease, but if a subject with a strong biological background of alcoholism in their family tree is never exposed to alcohol, they will not be so inclined regardless of their genome.

It is also a question open to debate whether there are genetic influences on the tendency of the co-twins to change, without keeping in mind the direction of the
change. Another factor that can be addressed is biological versus adoptive relatives, and can be clearly seen in what is a real-life experiment, adoption. This creates two groups: genetic relatives (biological parents and siblings) and environmental relatives (adoptive parents and siblings). After studying hundreds of adoptive families, the discovery was that people who grow up together, whether biologically related or not, do not much resemble one another in personality. In characteristics such as extroversion and agreeableness, adoptees are more like their biological parents than to their adoptive parents. However, the minute shared-environment effects do not mean that adoptive parenting is ineffective. Even though genetics may limit the family environment's influence on personality, parents do influence their children's attitudes, values, faith, manners and politics. In adoptive homes, child neglect and abuse and even divorce between the parents is uncommon. In accordance to that, it is not surprising, despite a somewhat greater risk of psychological disorder, most adopted children excel, especially when they're adopted as infants. In fact, seven out of eight have reported feeling a strong connection with one or even both of their adoptive parents.

Type theories

Personality type refers to the psychological classification of different types of people. Personality types are distinguished from personality traits, which come in different levels or degrees. For example, according to type theories, there are two types of people, introverts and extroverts. According to trait theories, introversion and extroversion are part of a continuous dimension, with many people in the middle. The idea of psychological types originated in the theoretical work of Carl Jung, specifically in his 1921 book *Psychologische Typen (Psychological Types)* and William Marston.
Building on the writings and observations of Jung during World War II, Isabel Briggs Myers and her mother, Katharine C. Briggs, delineated personality types by constructing the Myers-Briggs Type Indicator. This model was later used by David Keirsey with a different understanding from Jung, Briggs and Myers. In the former Soviet Union, Lithuanian Aušra Augustinavičiūtė independently derived a model of personality type from Jung's called Socionics. The model is an older and more theoretical approach to personality, accepting extroversion and introversion as basic psychological orientations in connection with two pairs of psychological functions:

- **Perceiving functions**: sensing and intuition (trust in concrete, sensory-oriented facts vs. trust in abstract concepts and imagined possibilities)
- **Judging functions**: thinking and feeling (basing decisions primarily on logic vs. considering the effect on people).

Briggs and Myers also added another personality dimension to their type indicator to measure whether a person prefers to use a judging or perceiving function when interacting with the external world. Therefore they included questions designed to indicate whether someone wishes to come to conclusions (judgment) or to keep options open (perception).

This personality typology has some aspects of a trait theory: it explains people's behaviour in terms of opposite fixed characteristics. In these more traditional models, the sensing/intuition preference is considered the most basic, dividing people into "N" (intuitive) or "S" (sensing) personality types. An "N" is further assumed to be guided either by thinking or feeling, and divided into the "NT" (scientist, engineer) or "NF" (author, humanitarian) temperament. An "S", by contrast, is assumed to be guided more by the judgment/perception axis, and thus divided into the "SJ"
(guardian, traditionalist) or "SP" (performer, artisan) temperament. These four are considered basic, with the other two factors in each case (including always extraversion/introversion) less important. Critics of this traditional view have observed that the types can be quite strongly stereotyped by professions (although neither Myers nor Keirsey engaged in such stereotyping in their type descriptions) and thus may arise more from the need to categorize people for purposes of guiding their career choice. This among other objections led to the emergence of the five-factor view, which is less concerned with behavior under work conditions and more concerned with behavior in personal and emotional circumstances. (It should be noted, however, that the MBTI is not designed to measure the "work self", but rather what Myers and McCaulley called the "shoes-off self.") Some critics have argued for more or fewer dimensions while others have proposed entirely different theories (often assuming different definitions of "personality").

Type A and Type B personality theory: During the 1950s, Meyer Friedman and his co-workers defined what they called Type A and Type B behavior patterns. They theorized that intense, hard-driving Type A personalities had a higher risk of coronary disease because they are "stress junkies." Type B people, on the other hand, tended to be relaxed, less competitive, and lower in risk. There was also a Type AB mixed profile.

John L. Holland's RIASEC vocational model, commonly referred to as the Holland Codes, stipulates that six personality types lead people to choose their career paths. In this circumplex model, the six types are represented as a hexagon, with adjacent types more closely related than those more distant. The model is widely used in vocational counseling.
Eduard Spranger's personality-model, consisting of six (or, by some revisions, 6 +1) basic types of value attitudes, described in his book *Types of Men* (*Lebensformen*; Halle (Saale): Niemeyer, 1914; English translation by P. J. W. Pigors - New York: G. E. Stechert Company, 1928).

The Enneagram of Personality, a model of human personality which is principally used as a typology of nine interconnected personality types. It has been criticized as being subject to interpretation, making it difficult to test or validate scientifically. It is not commonly taught or researched in academic psychology.

**Psychoanalytic theories**

Psychoanalytic theories explain human behavior in terms of the interaction of various components of personality. Sigmund Freud was the founder of this school of thought. Freud drew on the physics of his day (thermodynamics) to coin the term psychodynamics. Based on the idea of converting heat into mechanical energy, he proposed psychic energy could be converted into behavior. Freud's theory places central importance on dynamic, unconscious psychological conflicts.

Freud divides human personality into three significant components: the id, ego, and super-ego. The id acts according to the *pleasure principle*, demanding immediate gratification of its needs regardless of external environment; the ego then must emerge in order to realistically meet the wishes and demands of the id in accordance with the outside world, adhering to the *reality principle*. Finally, the superego (conscience) inculcates moral judgment and societal rules upon the ego, thus forcing the demands of the id to be met not only realistically but morally. The superego is the last function of the personality to develop, and is the embodiment of parental/social ideals established during childhood. According to Freud, personality is based on the dynamic interactions of these three components.
The channeling and release of sexual (libidal) and aggressive energies, which ensues from the "Eros" (sex; instinctual self-preservation) and "Thanatos" (death; instinctual self-annihilation) drives respectively, are major components of his theory. It is important to note that Freud's broad understanding of sexuality included all kinds of pleasurable feelings experienced by the human body.

Freud proposed five psychosexual stages of personality development. He believed adult personality is dependent upon early childhood experiences and largely determined by age five. Fixations that develop during the infantile stage contribute to adult personality and behavior.

One of Sigmund Freud's earlier associates, Alfred Adler, did agree with Freud that early childhood experiences are important to development and believed birth order may influence personality development. Adler believed that the oldest child was the individual who would set high achievement goals in order to gain attention lost when the younger siblings were born. He believed the middle children were competitive and ambitious. He reasoned that this behavior was motivated by the idea of surpassing the firstborn's achievements. He added, however, that the middle children were often not as concerned about the glory attributed with their behavior. He also believed the youngest would be more dependent and sociable. Adler finished by surmising that an only child loves being the center of attention and matures quickly but in the end fails to become independent.

Heinz Kohut thought similarly to Freud's idea of transference. He used narcissism as a model of how people develop their sense of self. Narcissism is the exaggerated sense of one self in which one is believed to exist in order to protect one's low self-esteem and sense of worthlessness. Kohut had a significant impact on the field by extending Freud's theory of narcissism and introducing what he called the
'self-object transferences' of mirroring and idealization. In other words, children need to idealize and emotionally "sink into" and identify with the idealized competence of admired figures such as parents or older siblings. They also need to have their self-worth mirrored by these people. These experiences allow them to thereby learn the self-soothing and other skills that are necessary for the development of a healthy sense of self.

Another important figure in the world of personality theory is Karen Horney. She is credited with the development of the "real self" and the "ideal self". She believes all people have these two views of their own self. The "real self" is how humans act with regard to personality, values, and morals; but the "ideal self" is a construct individuals implement in order to conform to social and personal norms.

**Behaviorist theories**

Behaviorists explain personality in terms of the effects external stimuli have on behavior. The approaches used to analyze the behavioral aspect of personality are known as behavioral theories or learning-conditioning theories. These approaches were a radical shift away from Freudian philosophy. One of the major tenets of this concentration of personality psychology is a strong emphasis on scientific thinking and experimentation. This school of thought was developed by B. F. Skinner who put forth a model which emphasized the mutual interaction of the person or "the organism" with its environment. Skinner believed children do bad things because the behavior obtains attention that serves as a reinforcer. For example: a child cries because the child's crying in the past has led to attention. These are the response, and consequences. The response is the child crying, and the attention that child gets is the reinforcing consequence. According to this theory, people's behavior is formed by processes such as operant conditioning. Skinner put forward a "three term
contingency model" which helped promote analysis of behavior based on the "Stimulus - Response - Consequence Model" in which the critical question is: "Under which circumstances or antecedent 'stimuli' does the organism engage in a particular behavior or 'response', which in turn produces a particular 'consequence'?"

Richard Herrnstein extended this theory by accounting for attitudes and traits. An attitude develops as the response strength (the tendency to respond) in the presences of a group of stimuli become stable. Rather than describing conditionable traits in non-behavioral language, response strength in a given situation accounts for the environmental portion. Herrstein also saw traits as having a large genetic or biological component as do most modern behaviorists.

Ivan Pavlov is another notable influence. He is well known for his classical conditioning experiments involving dogs. These physiological studies led him to discover the foundation of behaviorism as well as classical conditioning.

**Social cognitive theories**

In cognitive theory, behavior is explained as guided by cognitions (e.g. expectations) about the world, especially those about other people. Cognitive theories are theories of personality that emphasize cognitive processes, such as thinking and judging.

Albert Bandura, a social learning theorist suggested the forces of memory and emotions worked in conjunction with environmental influences. Bandura was known mostly for his "Bobo Doll experiment". During these experiments, Bandura video taped a college student kicking and verbally abusing a bobo doll. He then showed this video to a class of kindergarten children who were getting ready to go out to play. When they entered the play room, they saw bobo dolls, and some hammers. The
people observing these children at play saw a group of children beating the doll. He called this study and his findings observational learning, or modeling.

Early examples of approaches to cognitive style are listed by Baron (1982). These include Witkin's (1965) work on field dependency, Gardner's (1953) discovering people had consistent preference for the number of categories they used to categorise heterogeneous objects, and Block and Petersen's (1955) work on confidence in line discrimination judgments. Baron relates early development of cognitive approaches of personality to ego psychology. More central to this field have been:

- Attributional style theory dealing with different ways in which people explain events in their lives. This approach builds upon locus of control, but extends it by stating we also need to consider whether people attribute to stable causes or variable causes, and to global causes or specific causes.

Various scales have been developed to assess both attributional style and locus of control. Locus of control scales include those used by Rotter and later by Duttweiler, the Nowicki and Strickland (1973) Locus of Control Scale for Children and various locus of control scales specifically in the health domain, most famously that of Kenneth Wallston and his colleagues, The Multidimensional Health Locus of Control Scale. Attributional style has been assessed by the Attributional Style Questionnaire, the Expanded Attributional Style Questionnaire, the Attributions Questionnaire, the Real Events Attributional Style Questionnaire and the Attributional Style Assessment Test.

- Achievement style theory focuses upon identification of an individual's Locus of Control tendency, such as by Rotter's evaluations, and was found by Cassandra Bolyard Whyte to provide valuable information for improving academic performance.
of students. Individuals with internal control tendencies are likely to persist to better academic performance levels, presenting an achievement personality, according to Cassandra B. Whyte[40]

Recognition that the tendency to believe that hard work and persistence often results in attainment of life and academic goals has influenced formal educational and counseling efforts with students of various ages and in various settings since the 1970s research about achievement. Counseling aimed toward encouraging individuals to design ambitious goals and work toward them, with recognition that there are external factors that may impact, often results in the incorporation of a more positive achievement style by students and employees, whatever the setting, to include higher education, workplace, or justice programming.

Walter Mischel (1999) has also defended a cognitive approach to personality. His work refers to "Cognitive Affective Units", and considers factors such as encoding of stimuli, affect, goal-setting, and self-regulatory beliefs. The term "Cognitive Affective Units" shows how his approach considers affect as well as cognition.

Cognitive-Experiential Self-Theory (CEST) is another cognitive personality theory. Developed by Seymour Epstein, CEST argues that humans operate by way of two independent information processing systems: experiential system and rational system. The experiential system is fast and emotion-driven. The rational system is slow and logic-driven. These two systems interact to determine our goals, thoughts, and behavior.

Personal construct psychology (PCP) is a theory of personality developed by the American psychologist George Kelly in the 1950s. Kelly's fundamental view of personality was that people are like naive scientists who see the world through a
particular lens, based on their uniquely organized systems of construction, which they use to anticipate events. But because people are naive scientists, they sometimes employ systems for construing the world that are distorted by idiosyncratic experiences not applicable to their current social situation. A system of construction that chronically fails to characterize and/or predict events, and is not appropriately revised to comprehend and predict one's changing social world, is considered to underlie psychopathology (or mental illness.) From the theory, Kelly derived a psychotherapy approach and also a technique called The Repertory Grid Interview that helped his patients to uncover their own "constructs" with minimal intervention or interpretation by the therapist. The Repertory Grid was later adapted for various uses within organizations, including decision-making and interpretation of other people's world-views.

**Humanistic theories**

Humanistic psychology emphasizes that people have free will and that this plays an active role in determining how they behave. Accordingly, humanistic psychology focuses on subjective experiences of persons as opposed to forced, definitive factors that determine behavior. Abraham Maslow and Carl Rogers were proponents of this view, which is based on the "phenomenal field" theory of Combs and Snygg (1949). Rogers and Maslow were among a group of psychologists that worked together for a decade to produce the *Journal of Humanistic Psychology*. This journal was primarily focused on viewing individuals as a whole, rather than focusing solely on separate traits and processes within the individual.

Robert W. White wrote the book *The Abnormal Personality* that became a standard text on abnormal psychology. He also investigated the human need to strive
for positive goals like competence and influence, to counterbalance the emphasis of Freud on the pathological elements of personality development.

Maslow spent much of his time studying what he called "self-actualizing persons", those who are "fulfilling themselves and doing the best they are capable of doing". Maslow believes all who are interested in growth move towards self-actualizing (growth, happiness, satisfaction) views. Many of these people demonstrate a trend in dimensions of their personalities. Characteristics of self-actualizers according to Maslow include the four key dimensions:

1. **Awareness** - maintaining constant enjoyment and awe of life. These individuals often experienced a "peak experience". He defined a peak experience as an "intensification of any experience to the degree there is a loss or transcendence of self". A peak experience is one in which an individual perceives an expansion of his or herself, and detects a unity and meaningfulness in life. Intense concentration on an activity one is involved in, such as running a marathon, may invoke a peak experience.

2. **Reality and problem centered** - having a tendency to be concerned with "problems" in surroundings.

3. **Acceptance/Spontaneity** - accepting surroundings and what cannot be changed.

4. **Unhostile sense of humor/democratic** - do not take kindly to joking about others, which can be viewed as offensive. They have friends of all backgrounds and religions and hold very close friendships.

Maslow and Rogers emphasized a view of the person as an active, creative, experiencing human being who lives in the present and subjectively responds to current perceptions, relationships, and encounters. They disagree with the dark, pessimistic outlook of those in the Freudian psychoanalysis ranks, but rather view humanistic theories as positive and optimistic proposals which stress the tendency of
the human personality toward growth and self-actualization. This progressing self will remain the center of its constantly changing world; a world that will help mold the self but not necessarily confine it. Rather, the self has opportunity for maturation based on its encounters with this world. This understanding attempts to reduce the acceptance of hopeless redundancy. Humanistic therapy typically relies on the client for information of the past and its effect on the present, therefore the client dictates the type of guidance the therapist may initiate. This allows for an individualized approach to therapy. Rogers found patients differ in how they respond to other people. Rogers tried to model a particular approach to therapy- he stressed the reflective or empathetic response. This response type takes the client's viewpoint and reflects back his or her feeling and the context for it. An example of a reflective response would be, "It seems you are feeling anxious about your upcoming marriage". This response type seeks to clarify the therapist's understanding while also encouraging the client to think more deeply and seek to fully understand the feelings they have expressed.

**Biopsychological theories**

Biology plays a very important role in the development of personality. The study of the biological level in personality psychology focuses primarily on identifying the role of genetic determinants and how they mold individual personalities. Some of the earliest thinking about possible biological bases of personality grew out of the case of Phineas Gage. In an 1848 accident, a large iron rod was driven through Gage's head, and his personality apparently changed as a result, although descriptions of these psychological changes are usually exaggerated.

In general, patients with brain damage have been difficult to find and study. In the 1990s, researchers began to use ElectroencephaloTabley (EEG), Positron Emission TomoTabley (PET) and more recently functional Magnetic Resonance Imaging
(fMRI), which is now the most widely used imaging technique to help localize personality traits in the brain.

Genetic basis of personality

Ever since the Human Genome Project allowed for a much more in depth understanding of genetics, there has been an ongoing controversy involving heritability, personality traits, and environmental vs. genetic influence on personality. The human genome is known to play a role in the development of personality. Previously, genetic personality studies focused on specific genes correlating to specific personality traits. Today's view of the gene-personality relationship focuses primarily on the activation and expression of genes related to personality and forms part of what is referred to as behavioural genetics. Genes provide numerous options for varying cells to be expressed, however, the environment determines which of these are activated. Many studies have noted this relationship in varying ways in which our bodies can develop, but the interaction between genes and the shaping of our minds and personality is also relevant to this biological relationship. DNA-environment interactions are important in the development of personality because this relationship determines what part of the DNA code is actually made into proteins that will become part of an individual. It has been noted that while different choices are made available by the genome, in the end, the environment is the ultimate determinant of what becomes activated. Small changes in DNA in individuals are what lead to the uniqueness of every person as well as differences in looks, abilities, brain functioning, and all the factors that culminate to develop a cohesive personality. Cattell and Eysenck have proposed that genetics have a strong influence on personality. A large part of the evidence collected linking genetics and the environment to personality have come from twin studies. This "twin method"
compares levels of similarity in personality using genetically identical twins. One of the first of these twin studies measured 800 pairs of twins, studied numerous personality traits, and determined that identical twins are most similar in their general abilities. Personality similarities were found to be less related for self-concepts, goals, and interests.

Twin studies have also been important in the creation of the five factor personality model: neuroticism, extraversion, openness, agreeableness and conscientiousness. Neuroticism and extraversion are the two most widely studied traits. A person that may fall into the extrovert category can display characteristics such as impulsiveness, sociability, and activeness. A person falling into the neuroticism category may be more likely to be moody, anxious, or irritable. Identical twins however, have higher correlations in personality traits than fraternal twins. One studied measuring genetic influence on twins in five different countries found that the correlations for identical twins were .50, while for fraternal they were about .20. It is suggested that heredity and environment interact to determine one's personality.

**Evolutionary theory**

Charles Darwin is the founder of the theory of the evolution of the species. The evolutionary approach to personality psychology is based on this theory.\(^{[57]}\) This theory examines how individual personality differences are based on natural selection. Through natural selection organisms change over time through adaptation and selection. Traits are developed and certain genes come into expression based on an organism's environment and how these traits aid in an organism's survival and reproduction.

Polymorphisms, such as gender and blood-type, are forms of diversity which evolve to benefit a species as a whole. Computer scientists can solve wider ranges of
problems when their algorithmic toolboxes have greater evaluative diversity, various evolutionary theorists have shown that evaluative diversity could have evolved as a polymorphism among humans, and evaluative diversity has be shown to be significantly related to some aspects of personality. In other words, the reason why we have different personalities may be because this diversity can make teams more effective.\textsuperscript{[63][64][65]}

The theory of evolution has wide ranging implications on personality psychology. Personality viewed through the lens of evolutionary psychology places a great deal of emphasis on specific traits that are most likely to aid in survival and reproduction, such as conscientiousness, sociability, emotional stability, and dominance. The social aspects of personality can be seen through an evolutionary perspective. Specific character traits develop and are selected for because they play an important and complex role in the social hierarchy of organisms. Such characteristics of this social hierarchy include the sharing of important resources, family and mating interactions, and the harm or help organisms can bestow upon one another.

Mate competition within humans is theorized to play a very important role in the development of personality through evolution. Characteristics that are typically selected for through evolution are usually related to fertility and sexuality, as these traits will help ensure the continuation of the species. Some examples of this are traits that females seek in males related to features that will be helpful in a partner such as dominance, powerful status, and access to resources. Another such trait that can be explained by an evolutionary standpoint is sexual jealousy. Males are in competition to reproduce with the most fertile females and in order to prevent other weaker and less adept males from mating with their potential partners over time males evolved a predisposition to rage, aggression, and jealousy. It has also been speculated that
violence and killing is much more common in young males because they need to eliminate their competition in order for successful mating and reproduction to occur. Consequently, the age in which killing occurs the most frequently in males is also the age in which mating is the highest.

One of the reasons in which men pursue romantic relationships can be explained by evolutionary theory. Sexual and romantic relationships increase the likelihood that an individual will be able to pass on his genetic material so men are predisposed to pursuing many women. Women have a different set of priorities because once they are pregnant they cannot reproduce during this time period and when they are rearing children they need to use the time they have available to nurture and protect them. Studies have supported this idea and found that in the area of romantic relationships and sexual behavior men had felt much more regret looking back on the sexual experiences they did not have than did women.

**Big Five personality traits**

In psychology, the **Big Five personality traits** are five broad domains or dimensions of personality that are used to describe human personality. The theory based on the Big Five factors is called the **Five Factor Model (FFM)**. The Big Five factors are openness, conscientiousness, extraversion, agreeableness, and neuroticism. Acronyms commonly used to refer to the five traits collectively are OCEAN, NEOAC, or CANOE. Beneath each global factor, a cluster of correlated and more specific primary factors are found; for example, extraversion includes such related qualities as gregariousness, assertiveness, excitement seeking, warmth, activity, and positive emotions.

The Big Five model is able to account for different traits in personality without overlapping. Empirical research has shown that the Big Five personality traits
show consistency in interviews, self-descriptions and observations. Moreover, this five-factor structure seems to be found across a wide range of participants of different ages and of different cultures.

**The five factors**

A summary of the factors of the Big Five and their constituent traits, such that they form the acronym OCEAN:

- **Openness to experience**: *(inventive/curious vs. consistent/cautious)*. Appreciation for art, emotion, adventure, unusual ideas, curiosity, and variety of experience. Openness reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety a person has. It is also described as the extent to which a person is imaginative or independent, and depicts a personal preference for a variety of activities over a strict routine. Some disagreement remains about how to interpret the openness factor, which is sometimes called "intellect" rather than openness to experience.

- **Conscientiousness**: *(efficient/organized vs. easy-going/careless)*. A tendency to be organized and dependable, show self-discipline, act dutifully, aim for achievement, and prefer planned rather than spontaneous behavior.

- **Extraversion**: *(outgoing/energetic vs. solitary/reserved)*. Energy, positive emotions, surgency, assertiveness, sociability and the tendency to seek stimulation in the company of others, and talkativeness.

- **Agreeableness**: *(friendly/compassionate vs. analytical-detached)*. A tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. It is also a measure of one's trusting and helpful nature, and whether a person is generally well tempered or not.

- **Neuroticism**: *(sensitive/nervous vs. secure/confident)*. The tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, and vulnerability.
Neuroticism also refers to the degree of emotional stability and impulse control and is sometimes referred to by its low pole, "emotional stability".

The Big Five Model was defined by several independent sets of researchers. These researchers began by studying known personality traits and then factor-analyzing hundreds of measures of these traits (in self-report and questionnaire data, peer ratings, and objective measures from experimental settings) in order to find the underlying factors of personality. The Big five personality traits was the model to comprehend the relationship between personality and academic behaviors.

The initial model was advanced by Ernest Tupes and Raymond Christal in 1961 but failed to reach an academic audience until the 1980s. In 1990, J.M. Digman advanced his five factor model of personality, which Lewis Goldberg extended to the highest level of organization. These five overarching domains have been found to contain and subsume most known personality traits and are assumed to represent the basic structure behind all personality traits. These five factors provide a rich conceptual framework for integrating all the research findings and theory in personality psychology.

At least four sets of researchers have worked independently for decades on this problem and have identified generally the same Big Five factors: Tupes and Cristal were first, followed by Goldberg at the Oregon Research Institute, Cattell at the University of Illinois, and Costa and McCrae at the National Institutes of Health. These four sets of researchers used somewhat different methods in finding the five traits, and thus each set of five factors has somewhat different names and definitions. However, all have been found to be highly inter-correlated and factor-analytically aligned.
Because the Big Five traits are broad and comprehensive, they are not nearly as powerful in predicting and explaining actual behavior as are the more numerous lower-level traits. Many studies have confirmed that in predicting actual behavior the more numerous facet or primary level traits are far more effective (e.g., Mershon & Gorsuch, 1988; Paunonen & Ashton, 2001).

Each of the Big Five personality traits contains two separate, but correlated, aspects reflecting a level of personality below the broad domains but above the many facet scales that also comprise the Big Five. The aspects are labeled as follows: Volatility and Withdrawal for Neuroticism; Enthusiasm and Assertiveness for Extraversion; Intellect and Openness for Openness/Intellect; Industriousness and Orderliness for Conscientiousness; and Compassion and Politeness for Agreeableness.

**Openness to experience**

Openness is a general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience. People who are open to experience are intellectually curious, appreciative of art, and sensitive to beauty. They tend to be, when compared to closed people, more creative and more aware of their feelings. They are more likely to hold unconventional beliefs. On average, people who register high in openness are intellectually curious, open to emotion, interested in art, and willing to try new things. A particular individual, however, may have a high overall openness score and be interested in learning and exploring new cultures but have no great interest in art or poetry. There is a strong connection between liberal ethics and openness to experience such as support for policies endorsing racial tolerance. Another characteristic of the open cognitive style is a facility for thinking in symbols and abstractions far removed from concrete experience. People with low scores on openness tend to have more conventional, traditional interests. They prefer the plain,
straightforward, and obvious over the complex, ambiguous, and subtle. They may regard the arts and sciences with suspicion or view these endeavors as uninteresting. Closed people prefer familiarity over novelty; they are conservative and resistant to change.

**Conscientiousness**

Conscientiousness is a tendency to show self-discipline, act dutifully, and aim for achievement against measures or outside expectations. It is related to the way in which people control, regulate, and direct their impulses. High scores on conscientiousness indicate a preference for planned rather than spontaneous behavior. The average level of conscientiousness rises among young adults and then declines among older adults.

**Extraversion**

Extraversion is characterized by breadth of activities (as opposed to depth), surgency from external activity/situations, and energy creation from external means. The trait is marked by pronounced engagement with the external world. Extraverts enjoy interacting with people, and are often perceived as full of energy. They tend to be enthusiastic, action-oriented individuals. They possess high group visibility, like to talk, and assert themselves.

Introverts have lower social engagement and energy levels than extraverts. They tend to seem quiet, low-key, deliberate, and less involved in the social world. Their lack of social involvement should not be interpreted as shyness or depression; instead they are more independent of their social world than extraverts. Introverts need less stimulation than extraverts and more time alone. This does not mean that they are unfriendly or antisocial; rather, they are reserved in social situations.
Agreeableness

The agreeableness trait reflects individual differences in general concern for social harmony. Agreeable individuals value getting along with others. They are generally considerate, kind, generous, trusting and trustworthy, helpful, and willing to compromise their interests with others. Agreeable people also have an optimistic view of human nature.

Because agreeableness is a social trait, research has shown that one's agreeableness positively correlates with the quality of relationships with one's team members. Agreeableness also positively predicts transformational leadership skills. In a study conducted among 169 participants in leadership positions in a variety of professions, individuals were asked to take a personality test and have two evaluations completed by directly supervised subordinates. Leaders with high levels of agreeableness were more likely to be considered transformational rather than transactional. Although the relationship was not strong, \( r=0.32, \beta=0.28, p<0.01 \) it was the strongest of the Big Five traits. However, the same study showed no predictive power of leadership effectiveness as evaluated by the leader's direct supervisor. Agreeableness, however, has been found to be negatively related to transactional leadership in the military. A study of Asian military units showed leaders with a high level of agreeableness to be more likely to receive a low rating for transformational leadership skills. Therefore, with further research organizations may be able to determine an individual's potential for performance based on their personality traits.

Disagreeable individuals place self-interest above getting along with others. They are generally unconcerned with others' well-being, and are less likely to extend
themselves for other people. Sometimes their skepticism about others' motives causes them to be suspicious, unfriendly, and uncooperative.

**Neuroticism**

Neuroticism is the tendency to experience negative emotions, such as anger, anxiety, or depression. It is sometimes called emotional instability, or is reversed and referred to as emotional stability. According to Eysenck's (1967) theory of personality, neuroticism is interlinked with low tolerance for stress or aversive stimuli. Those who score high in neuroticism are emotionally reactive and vulnerable to stress. They are more likely to interpret ordinary situations as threatening, and minor frustrations as hopelessly difficult. Their negative emotional reactions tend to persist for unusually long periods of time, which means they are often in a bad mood. For instance, neuroticism is connected to a pessimistic approach toward work, confidence that work impedes with personal relationships, and apparent anxiety linked with work. Furthermore, those who score high on neuroticism may display more skin conductance reactivity than those who score low on neuroticism. These problems in emotional regulation can diminish the ability of a person scoring high on neuroticism to think clearly, make decisions, and cope effectively with stress. Lacking contentment in one's life achievements can correlate with high neuroticism scores and increase one's likelihood of falling into clinical depression.

At the other end of the scale, individuals who score low in neuroticism are less easily upset and are less emotionally reactive. They tend to be calm, emotionally stable, and free from persistent negative feelings. Freedom from negative feelings does not mean that low scorers experience a lot of positive feelings. Research suggests extraversion and neuroticism are negatively correlated.
Neuroticism is similar but not identical to being neurotic in the Freudian sense. Some psychologists prefer to call neuroticism by the term emotional stability to differentiate it from the term neurotic in a career test.

History

Early trait research

Sir Francis Galton in 1884 made the first major inquiry into a hypothesis that by sampling language it is possible to derive a comprehensive taxonomy of human personality traits— the lexical hypothesis. In 1936 Gordon Allport and S. Odbert put Sir Francis Galton’s hypothesis into practice by extracting 4,504 adjectives which they believed were descriptive of observable and relatively permanent traits from the dictionaries at that time. In 1940, Raymond Cattell obtained the adjectives, and eliminated synonyms to reduce the total to 171. He constructed a personality test for the clusters of personality traits he found from the adjectives, called Sixteen Personality Factor Questionnaire. Then, in 1961, Ernest Tupes and Raymond Christal found five recurring factors from this 16PF Questionnaire. The recurring five factors were: "surgency", "agreeableness", "dependability", "emotional stability", and "culture". This work was replicated by Warren Norman, who also found that five major factors were sufficient to account for a large set of personality data. Norman named these factors surgency, agreeableness, conscientiousness, emotional stability, and culture; and these factors are through which Five Factor consensus has grown.

Hiatus in research

For the next two decades, the changing zeitgeist made publication of personality research difficult. In his 1968 book Personality and Assessment, Walter Mischel asserted that personality tests could not predict behavior with a correlation of more than 0.3. Social psychologists like Mischel argued that attitudes and behavior
were not stable, but varied with the situation. Predicting behavior by personality tests was considered to be impossible.

Emerging methodologies challenged this point of view during the 1980s. Instead of trying to predict single instances of behavior, which was unreliable, researchers found that they could predict patterns of behavior by aggregating large numbers of observations. As a result correlations between personality and behavior increased substantially, and it was clear that "personality" did in fact exist. Personality and social psychologists now generally agree that both personal and situational variables are needed to account for human behavior. Trait theories became justified, and there was a resurgence of interest in this area.

By 1980, the pioneering research by Tupes, Christal, and Norman had been largely forgotten by psychologists. Lewis Goldberg started his own lexical project, independently found the five factors once again, and gradually brought them back to the attention of psychologists. He later coined the term "Big Five" as a label for the factors.

**Renewed attention**

In a 1980 symposium in Honolulu, four prominent researchers, Lewis Goldberg, Naomi Takemoto-Chock, Andrew Comrey, and John M. Digman, reviewed the available personality tests of the day. They concluded that the tests which held the most promise measured a subset of five common factors, just as Norman had discovered in 1963. This event was followed by widespread acceptance of the five factor model among personality researchers during the 1980s. Peter Saville and his team included the five-factor "Pentagon" model with the original OPQ in 1984. Pentagon was closely followed by the NEO five-factor personality inventory, published by Costa and McCrae in 1985.
Biological factors

Heritability

Twin studies suggest that heritability and environmental factors equally influence all five factors to the same degree. Among four recent twin studies, the mean percentage for heritability was calculated for each personality and it was concluded that heritability influenced the five factors broadly. The self-report measures were as follows: openness to experience was estimated to have a 57% genetic influence, extraversion 54%, conscientiousness 49%, neuroticism 48%, and agreeableness 42%.

Age differences

Many studies of longitudinal data, which correlate people's test scores over time, and cross-sectional data, which compare personality levels across different age groups, show a high degree of stability in personality traits during adulthood. It is shown that the personality stabilizes for working-age individuals within about four years after starting working. There is also little evidence that adverse life events can have any significant impact on the personality of individuals. More recent research and meta-analyses of previous studies, however, indicate that change occurs in all five traits at various points in the lifespan. The new research shows evidence for a maturation effect. On average, levels of agreeableness and conscientiousness typically increase with time, whereas extraversion, neuroticism, and openness tend to decrease. Research has also demonstrated that changes in Big Five personality traits depend on the individual's current stage of development. For example, levels of agreeableness and conscientiousness demonstrate a negative trend during childhood and early adolescence before trending upwards during late adolescence and into adulthood. In
addition to these group effects, there are individual differences: different people demonstrate unique patterns of change at all stages of life.

Another area of investigation is the downward extension of Big Five theory into childhood. Studies have found Big Five personality traits to correlate with children's social and emotional adjustment and academic achievement. More recently, the Five Factor Personality Inventory – Children was published extending assessment between the ages of 9 and 18. Perhaps the reason for this recent publication was the controversy over the application of the Five Factor Model to children. Studies by Oliver P. John et al. with adolescent boys brought two new factors to the table: "Irritability" and "Activity". In studies of Dutch children, those same two new factors also became apparent. These new additions "suggest that the structure of personality traits may be more differentiated in childhood than in adulthood", which would explain the recent research in this particular area.

In addition, some research (Fleeson, 2001) suggests that the Big Five should not be conceived of as dichotomies (such as extraversion vs. introversion) but as continua. Each individual has the capacity to move along each dimension as circumstances (social or temporal) change. He is or she is therefore not simply on one end of each trait dichotomy but is a blend of both, exhibiting some characteristics more often than others:

Research regarding personality with growing age has suggested that as individuals enter their elder years (79–86), those with lower IQ see a raise in extraversion, but a decline in conscientiousness and physical well being.

A research by Cobb-Clark and Schurer indicates that personality traits are generally stable among adult workers. The research done on personality also mirrors previous results on locus of control.
Brain structures

Some research has been done to look into the structures of the brain and their connections to personality traits of the FFM. Two main studies were done by Sato et al. (2012) and DeYoung et al. (2009). Results of the two are as follows:

- Neuroticism: negatively correlated with ratio of brain volume to remainder of intracranial volume, reduced volume in dorsomedial PFC and a segment of left medial temporal lobe including posterior hippocampus, increased volume in the mid-cingulate gyrus.
- Extraversion: positively correlated with orbitofrontal cortex metabolism, increased cerebral, volume of medial orbitofrontal cortex.
- Agreeableness: negatively correlated with left orbitofrontal lobe volume in frontotemporal dementia patients, reduced volume in posterior left superior temporal sulcus, increased volume in posterior cingulate cortex.
- Conscientiousness: volume of middle frontal gyrus in left lateral PFC.
- Openness to experience: No regions large enough to be significant, although parietal cortex may be involved.

Group differences

Cross-cultural research has shown some patterns of gender differences on responses to the NEO-PI-R and the Big Five Inventory. For example, women consistently report higher Neuroticism, Agreeableness, warmth (an extraversion facet) and openness to feelings, and men often report higher assertiveness (a facet of extraversion) and openness to ideas as assessed by the NEO-PI-R.

A study of gender differences in 55 nations using the Big Five Inventory found that women tended to be somewhat higher than men in neuroticism, extraversion, agreeableness, and conscientiousness. The difference in neuroticism was
the most prominent and consistent, with significant differences found in 49 of the 55 nations surveyed. Gender differences in personality traits are largest in prosperous, healthy, and more gender-egalitarian cultures. A plausible explanation for this is that acts by women in individualistic, egalitarian countries are more likely to be attributed to their personality, rather than being attributed to ascribed gender roles within collectivist, traditional countries. Differences in the magnitude of sex differences between more or less developed world regions were due to differences between men, not women, in these respective regions. That is, men in highly developed world regions were less neurotic, extraverted, conscientious and agreeable compared to men in less developed world regions. Women, on the other hand tended not to differ in personality traits across regions. The authors of this study speculated that resource-poor environments (that is, countries with low levels of development) may inhibit the development of gender differences, whereas resource-rich environments facilitate them. This may be because males require more resources than females in order to reach their full developmental potential. The authors also argued that due to different evolutionary pressures, men may have evolved to be more risk taking and socially dominant, whereas women evolved to be more cautious and nurturing. Ancient hunter-gatherer societies may have been more egalitarian than later agriculturally oriented societies. Hence, the development of gender inequalities may have acted to constrain the development of gender differences in personality that originally evolved in hunter-gatherer societies. As modern societies have become more egalitarian, again, it may be that innate sex differences are no longer constrained and hence manifest more fully than in less-developed cultures. Currently, this hypothesis remains untested, as gender differences in modern societies have not been compared with those in hunter-gatherer societies.
Birth-order differences

Frank Sulloway argues that firstborns are more conscientious, more socially dominant, less agreeable, and less open to new ideas compared to laterborns. Large scale studies using random samples and self-report personality tests, however, have found milder effects than Sulloway claimed, or no significant effects of birth order on personality.

Cultural differences

The Big Five have been replicated in a variety of languages and cultures, such as German, Chinese, Indian, etc. For example, Thompson has demonstrated the Big Five structure across several cultures using an international English language scale. Cheung, van de Vijver, and Leong (2011) suggest, however, that the Openness factor is particularly unsupported in Asian countries and that a different fifth factor is sometimes identified.

Recent work has found relationships between Geert Hofstede’s cultural factors, Individualism, Power Distance, Masculinity, and Uncertainty Avoidance, with the average Big Five scores in a country. For instance, the degree to which a country values individualism correlates with its average extraversion, whereas people living in cultures which are accepting of large inequalities in their power structures tend to score somewhat higher on conscientiousness. Although this is an active area of research, the reasons for these differences are as yet unknown.

Attempts to replicate the Big Five in other countries with local dictionaries have succeeded in some countries but not in others. Apparently, for instance, Hungarians do not appear to have a single agreeableness factor. Other researchers have found evidence for agreeableness but not for other factors.